

8027-016

COMPETINE CREEK WATER QUALITY
IMPROVEMENT PROJECT

Marion Soil and Water Conservation District

Prepared by

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8027-016 Compentine Creek Water Quality Improvement Project

Financial Accountability

Watershed Improvement Funds

Grant Agreement Budget Line Item	Total Funds Approved (\$)	Total Funds Expended (\$)	Available Funds (\$)
Water & Sediment Control Basins	61,875	55,001	6,874
Grassed Waterway	3,000	2,972	28
Contour Terraces	15,625	14,175	1,450
Grade Stabilization Structure	22,500	7,155	15,345
Constructed Wetland	10,780	10,780	0
Infiltration Cells	30,000	7,970	22,030
Signs	2,000	525	1,475
Rain Garden	2,000	959	1,041
Improved Grazing Mgt	3,000	0	3,000
Streambank Stabilization	45,000	0	45,000
Riffle/Pool	3,750	0	3,750
Totals			99,993
Difference			99,993

The approved application budget attempted to provide funding to urban and rural water quality concerns. Based on the assessment conducted prior to the grant application, urban concerns were excessive runoff from impervious surfaces, stream bank instability from increased water volume and high bacteria counts. Best Management Practices (BMP) was integrated into the application and budget to address these urban concerns. The City of Knoxville had embarked on stabilizing some sections of Compentine Creek, mainly storm sewer outlets, through a grant to upgrade their sanitary and storm sewer system. This coupled with severe wet weather and the high cost led to stream bank stabilization being difficult to sell to urban landowners. Another urban BMP, rain garden was difficult to implement because of the saturated soils and cost in relation to benefit. Impervious pavement was looked at as a measure to increase infiltration of storm water but again the high cost was a barrier. High bacteria counts were recorded at the outlet of the Knoxville Waste Water Treatment Plant. The City is currently upgrading the plant to meet discharge requirements. With high commodity prices and wet weather, agricultural BMP's were implemented with greater success as saturated ground led to increased soil loss from sheet and rill and gully erosion. BMP such as contoured terraces, grassed waterways, water and sediment control basins and grade stabilization structures greatly reduced sediment delivery to Compentine Creek and were more cost effective. The unspent balance was high as the Compentine Creek Water Quality Improvement project was used as an added incentive to aid landowner's implementation of BMP in addition to EQIP and WSPF funding.

8027-016 Compentine Creek Water Quality Improvement Project

Total Project Funding

Funding Source	Cash		In-Kind Contributions		Total	
	Approved Application Budget (\$)	Actual (\$)	Approved Application Budget (\$)	Actual (\$)	Approved Application Budget (\$)	Actual (\$)
WIRB	199,530	199,530	0	0	199,530	199,530
WSPF-WPF	314,451	314,451	0	0	314,451	314,451
Recipient	110,149	134,367	0	0	110,149	134,367
EQIP	156,250	28,779	0	0	156,250	28,779
City	37,970	8,288	10,000	5,020	47,970	13,308
Totals	818,350	685,415	10,000	5,020	828,350	690,435

Watershed Improvement Fund Contribution: Approved application budget: 24%

Actual: 29%

Actual amounts contributed by various funding sources varied according to BMP location. As mentioned previously, the City of Knoxville has had sanitary sewer and storm sewer updates going on continuously along much of Compentine Creek and so their funding was funneled into those projects with very little funding available for other projects. EQIP funding for Iowa was also reduced during this time, putting more pressure on state funding. WSPF-WPF funds were sufficient to cover a portion of implementation costs for the BMP for which they were obligated, mainly contoured terraces, grassed waterways, grade stabilization structures and water and sediment control basins.

8027-016 Compentine Creek Water Quality Improvement Project

Environmental Accountability

Practice or Activity	Unit	Approved Application Goal	Accomplishments	Percent Completion
Water & Sediment Control Basins	No.	21	68	323
Grassed Waterway	Ac.	5	3.6	72
Contour Terraces	Ft.	32,500	9857	
Grade Stabilization Structure	No.	8	2	25
Constructed Wetland	No.	1	1	100
Infiltration Cells	No.	2	1	50
Signs	No.	4	1	25
Rain Garden	No.	5	1	20
Improved Grazing Mgt	Ac.	120	10	8
Streambank Stabilization	Ft.	3,250	200	6
Riffle/Pool	No.	1	0	0

Establishment of an IOWATER volunteer monitoring program within the project area has helped establish some base line data for Compentine Creek. As of this time the data has not been conclusive because of inconsistent data collection and the length of time the monitoring has occurred.

Targeted water resource pollutant loading reduction calculations were maintained for all BMP implemented during the length of the grant. Original goals of this project were to reduce sediment and nutrient delivery by 1787 tons/year and 2144 lbs/year by installing BMP on high priority agricultural land and install urban conservation practices that reduce the volume of peak flow, improve stream bank stability and promote infiltration of storm water runoff. The sediment delivery reduction for the length of the project was 2023 tons/year and the nutrient delivery reduction was 2428 lbs/year. The Sediment Delivery Calculator was used to determine sediment delivery reductions using drainage area, soil loss based on the Revised Universal Soil Loss Equation (RUSLE), and tillage practices. This gives a consistent method to determine sediment delivery reduction. The City of Knoxville did complete 200' of stream bank stabilization in conjunction with other storm sewer improvements and 1 rain garden was completed to promote infiltration of storm water runoff. These improvements were small in comparison to need but are a start.

8027-016 Competine Creek Water Quality Improvement Project

Program Accountability

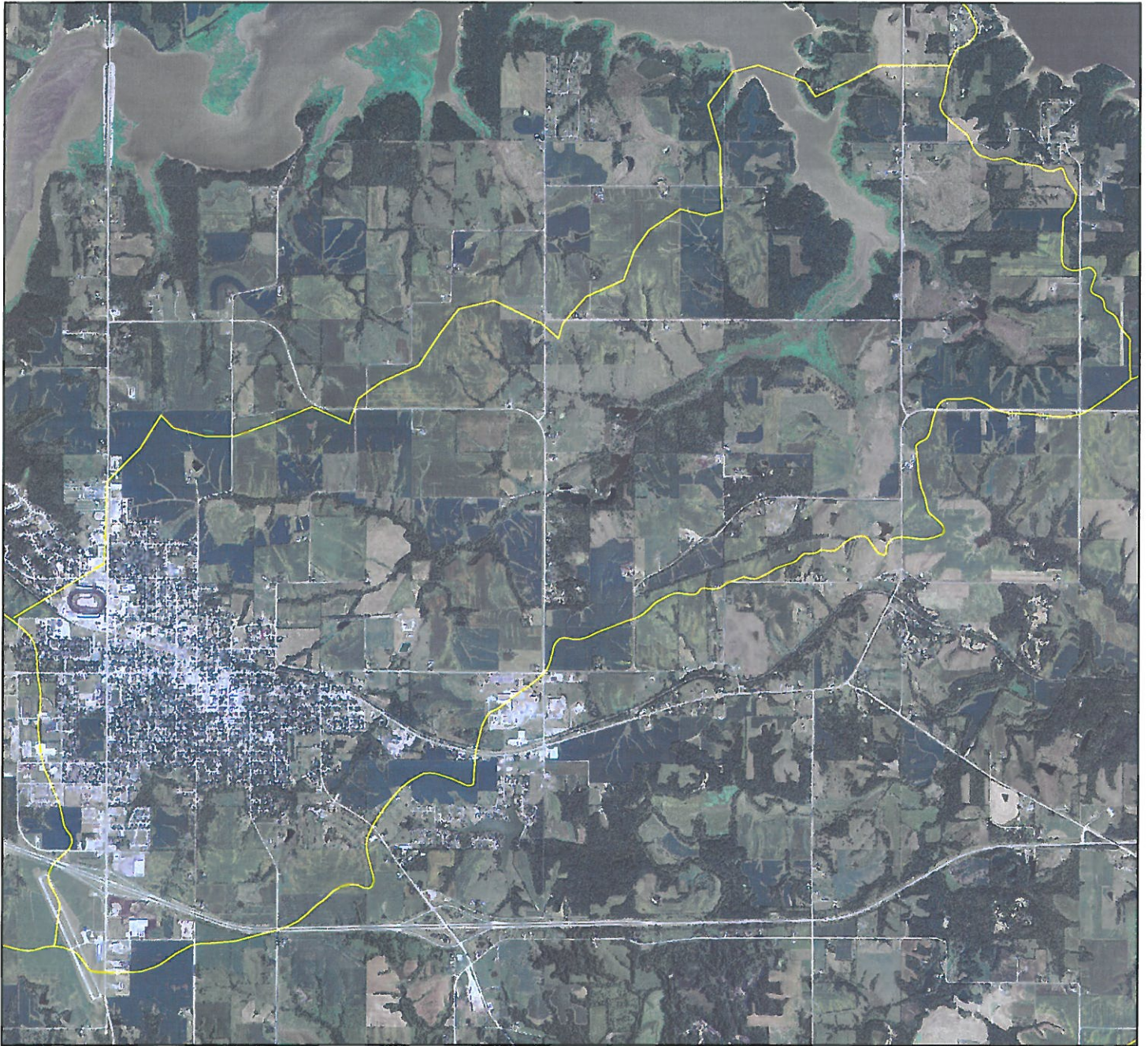
The combination of agriculture and urban influences on water quality has provided a unique opportunity to bring together two distinct perspectives. Individual landowner contacts were critical to the success attained in implementing Best Management Practices (BMP) on high priority land. The development of relationships with local community and civic leaders made it possible to ascertain their needs and priorities on urban concerns. The relationship with the media allowed access to the public which normally would not have knowledge of water quality issues. Interviews with the local radio station allowed for periodic updates and opportunities for public input. Press releases to both the local newspaper and radio station kept the public informed as to the status of the project. Opportunities to speak to local civic groups aided in the development of relationships by providing the chance to speak and answer questions in an informal atmosphere.

Activities completed to expand the impact of the project included field days to showcase water quality improvement efforts. These included dedicating a constructed wetland to a former NRCS District Conservationist and including dignitaries from state and local government, local stakeholders including local landowners, corporate executives, contractors and interested individuals. Also, an annual field day to introduce local 7th grade Science students to the importance of stewardship of natural resources and the relationship of water quality has been held the past three years with much enthusiasm. Speaking with local civic and community groups has given an opportunity to develop relationships with leaders in the community. Field visits and landowner contacts help develop the trust that relationships need. This means being in the field and communicating needs, concerns, options and successes.


As with all endeavors the project has offered many challenges. In response to challenges patience, communication, experience, and cooperation are needed to reach a suitable solution. As the project began patience and communication were needed as landowners and stakeholders became familiar with the project and the coordinator. However, attempting to work with multiple landowners in the urban setting was very trying. This challenge was met because of familiarity with the project area and the relationships developed. Another challenge was the shortage of conservation technicians to aid in the implementation of conservation practices. This challenge was met by good planning and accepting the challenge to learn to do layout, survey and design to implement BMP. The largest challenge was the weather. The wet weather prevented construction work from being completed and created a backlog. Short windows of opportunity were available for construction work and this took good planning, preparation and organization to complete BMP.

COMPETINE CREEK WATERSHED

Date: 7/25/2012



Legend

 wbdhu12_a_ia

1 inch equals 4,500 feet

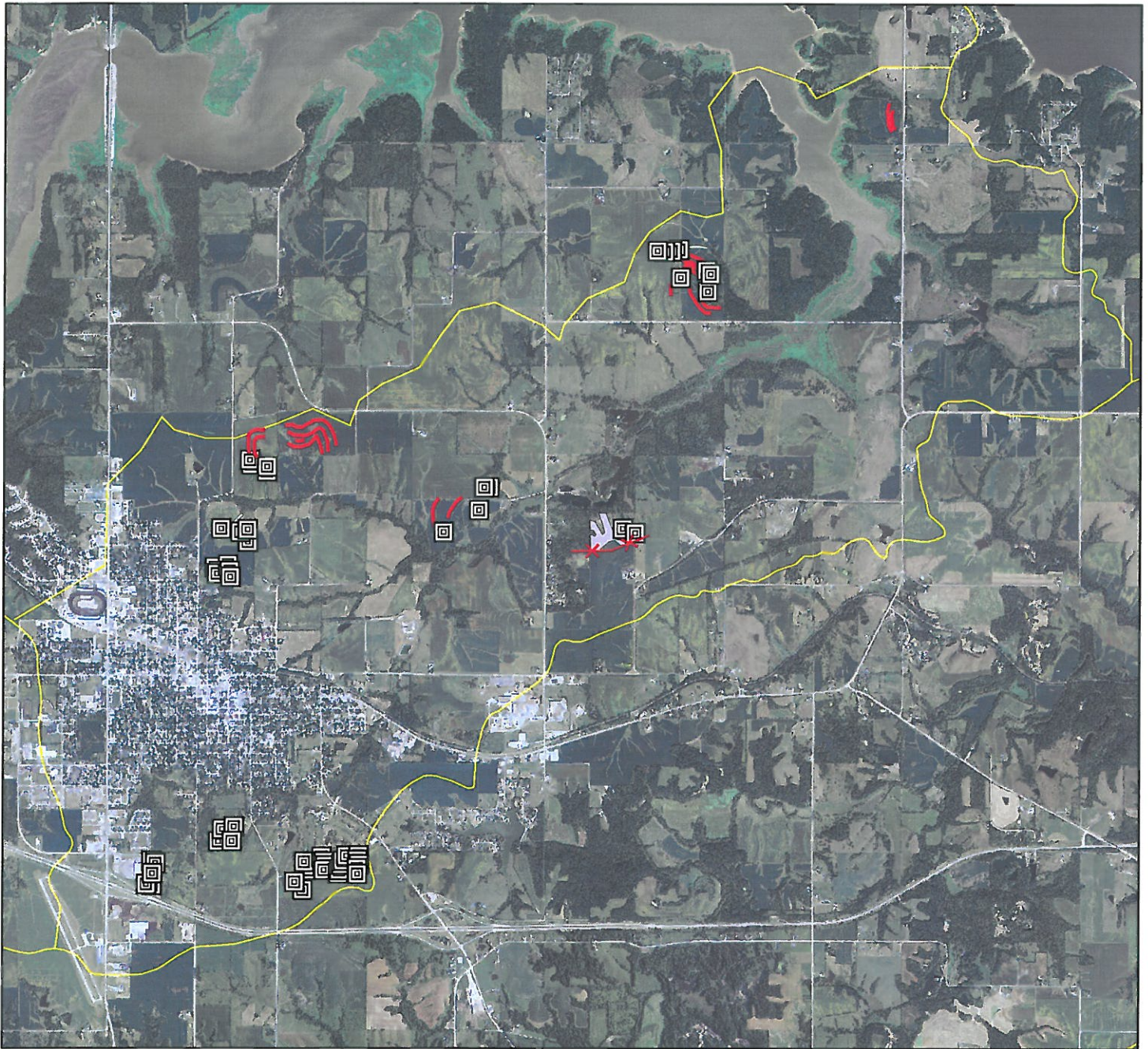
2,300 0 2,300 4,600 6,900 9,200
Feet

N









COMPETINE CREEK WATERSHED

Date: 7/25/2012



Legend

-  fence
-  wascob
-  hay-pasture
-  terrace
-  waterway
-  wbdhu12_a_ia



1 inch equals 4,500 feet

2,400 0 2,400 4,800 7,200 9,600 Feet

